

Courtesy copy of claims
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The following claim amendments were submitted with the Preliminary Amendment of November 3, 2004 and are included here as a matter of convenience.

Amendments to the Claims

1. (Cancel) An apparatus for the monitoring and control of the combustion process in combustion zone of a burner assembly of a combustion system, the apparatus comprising:
 - a combustion system comprising a fuel nozzle having a first and second end and an outer shell in fluid communication with the fuel nozzle second end, wherein the outer shell defines a combustion chamber;
 - a means for supplying a hydrocarbon-based fuel to the fuel nozzle at a rate;
 - a means for supplying an oxidizer to the fuel nozzle at a rate;
 - a means for igniting the hydrocarbon-based fuel and oxidizer thereby initiating the combustion process, the products of which comprises hydrocarbon ions;
 - a sensor positioned within the combustion system, said sensor including a first electrode and a second electrode in spaced-apart relationship of the first electrode, wherein at least a portion of the combustion process takes place between the first and second electrodes;
 - a means for applying a voltage between the first and second electrodes; and
 - a means for determining the magnitude of a current between the first and second electrodes.

17. (New -Replaces Cancelled Claim 1) An apparatus for the real-time monitoring and control of the combustion process in the combustion zone of a burner assembly of a combustion system, the apparatus comprising:
 - flow-through combustion means having upstream and downstream end portions in fluid communication;

 - said upstream end portion having at least one fuel mixing chamber including fuel supplying means for supplying a hydrocarbon fuel at a first rate and oxidizer supplying